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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,054	01/12/2004	Ai-Ling Lin	T-1290	1712
802	7590	11/22/2004	EXAMINER	
DELLETT AND WALTERS P. O. BOX 2786 PORTLAND, OR 97208-2786			NGHIEM, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/756,054	Applicant(s) LIN ET AL.	
	Examiner Michael P Nghiem	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 1 and 3-6 are objected to because of the following informalities:
- claims 1, 5, 6, "the reference first and second sine wave signals" lack antecedent basis.
  - claim 1, what is the difference between "the reference first and/or second sine wave signals (RSx, RSy)" and "the first and/or second sine wave signals (Sx, Sy)"?
  - claim 3, "Xmas" (line 5) should be -- Xmax --.
  - claim 4, "Ymas" (line 5) should be -- Ymax --.

- claim 5, "the ratio R1" (line 6) lacks antecedent basis.
- claim 5, "the ratio R1" (line 6) is not defined.
- claim 6, "the ratio R2" (line 6) lacks antecedent basis.
- claim 5, "the ratio R2" (line 6) is not defined.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato (US 6,606,799).

Regarding claim 1, Kato discloses a method (Fig. 1) of resetting to zero azimuth automatically (Fig. 16) comprising the steps of:

- collecting multiple samples with different azimuths in the longitudinal and latitudinal orientations using two orthogonal magnetic sensors (via 20, 21), and outputting corresponding first and second sine wave signals ( $S_x$ ) ( $S_y$ ) (Fig. 16);

- adjusting the amplitudes of one of the first and second sine wave signals ( $S_x$ ) ( $S_y$ ) such that the amplitudes of the first sine wave signals ( $S_x$ ) and the amplitudes of the second sine wave signal ( $S_y$ ) are equal (amplitudes of  $V_x$  and  $V_y$  are equal, Fig. 16, column 31, lines 15-16);

- comparing the sample values in each set respectively represented by the first and second sine wave signals ( $S_x$ ) ( $S_y$ ) to generate the maximum and minimum values ( $X_{max}$ ,  $X_{min}$ ) ( $Y_{max}$ ,  $Y_{min}$ ) (S195, Fig. 18);

- computing the average values ( $X_{base}$ ,  $Y_{base}$ ) basing on the maximum and minimum values ( $X_{max}$ ,  $X_{min}$ ) ( $Y_{max}$ ,  $Y_{min}$ ), and taking the average values ( $X_{base}$ ,  $Y_{base}$ ) as the reference first and second sine wave signals ( $RS_x$ ,  $RS_y$ ) having reset to zero azimuth (column 32, lines 32-36, Fig. 16), whereby

- the reference first and second sine wave signals ( $RS_x$ ) ( $RS_y$ ) have the positive and negative sides of equal amplitude (Fig. 16).

Regarding claim 2, Kato discloses that the first and second sine wave signals ( $S_x$ ) ( $S_y$ ) from the two magnetic sensors are 90 degrees out of phase with each other (column 15, lines 19-24).

***Allowable Subject Matter***

4. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 5 and 6 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

***Reasons For Allowance***

6. The method as claimed wherein yielding a differential ratio  $R1 = X_{max}/Y_{max}$  (claims 3, 5) or yielding a differential ratio  $R2 = Y_{max}/X_{max}$  (claim 4) is not disclosed, suggested, or made obvious by the prior art of record.

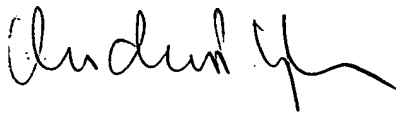
***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read "Michael Nghiem", with a stylized flourish at the end.

**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**  
Michael Nghiem

November 17, 2004